IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Henot *et al.*	Art Unit: 1615
Application No.: 10/561,175	Examiner: *To Be Assigned*
§ 371 Date: February 16, 2006	Atty. Docket: 2447.0030000/ELE/LMB

For: **Epitope Composition for Sublingual, Buccal or Enteric Administration Prepared by Hydrolysis of Antigenic Structures with Chymotrypsin**

Request for Corrected Patent Application Publication Under 37 C.F.R. § 1.221(b)

Attn: Mail Stop PGPUB

Commissioner for Patents
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Alexandria, VA 22313-1450

Sir:

Pursuant to 37 C.F.R. § 1.221(b), Applicants respectfully request that the captioned publication be republished to correct material errors by the USPTO. Specifically, the following correction is requested:

Correction Requested in Publication	Support in Application as Filed
Please replace the specification and drawings in their entirety with the specification and drawings of International Appl. No. PCT/EP2004/006733.	Transmittal Letter to the United States Designated/Elected Office (DO/EO/US) Concerning a Submission Under 35 U.S.C. 371 requesting national examination for International Appl. No. PCT/EP2004/006733 as filed on February 16, 2006.

The captioned application is the U.S. National Phase of International Appl. No. PCT/EP2004/006733. A copy of International Publication No. WO 2004/112833 which corresponds to International Appl. No. PCT/EP2004/006733, and a copy of the

Transmittal Letter to the United States Designated/Elected Office (DO/EO/US) Concerning a Submission Under 35 U.S.C. 371 requesting national examination for the captioned application as filed on February 16, 2006 are enclosed.

The captioned application published as Publication No. US 2006/0147459 A1 on July 6, 2006. The specification and drawings published in US 2006/0147459 A1 do not correspond to the specification and drawings of the corresponding International Appl. No. PCT/EP2004/006733. A copy of US 2006/0147459 A1 is enclosed with the requested correction noted in red. Republication of the captioned publication to correct material mistakes made by the USPTO is believed proper and issuance thereof is respectfully requested.

This request is being made within two months from the date of the captioned patent application publication. No fee is believed to be due. The Commissioner is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

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(54) **EPITOPE COMPOSITION FOR SUBLINGUAL, BUCCAL OR ENTERIC ADMINISTRATION PREPARED BY HYDROLYSIS OF ANTIGENIC STRUCTURES WITH CHYMOTRYPSIN**

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(57) **ABSTRACT**

In the case of a module (1) for a data carrier (11) designed for contactless communication, the module (1) has a chip (3) with at least two pairs (20, 21) of chip connection contacts (4, 5, 6, 7) and with at least two pairs (22, 23) of module connecting plates (24, 25, 26, 27), wherein in a starting position, the shapes of the plate surfaces of the module connecting plates (24, 25, 26, 27) result in a particular plate pattern, and differ with regard to the shape of the plate surfaces such that when all the module connecting plates (24, 25, 26, 27) are rotated around a mid-point (8) of the module (1), the same plate pattern results respectively after 180°.

Please replace abstract with the attached abstract for above-identified application.

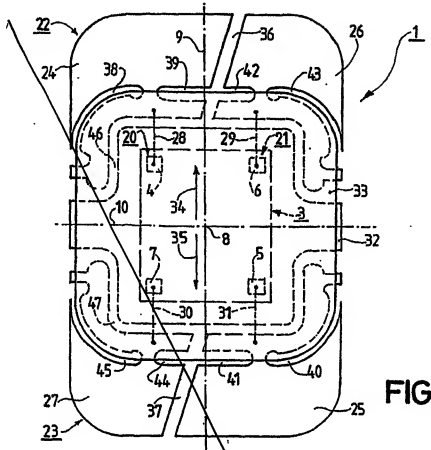
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FIG.1

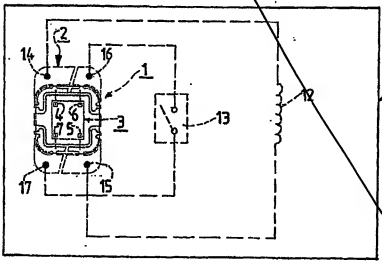
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FIG.2

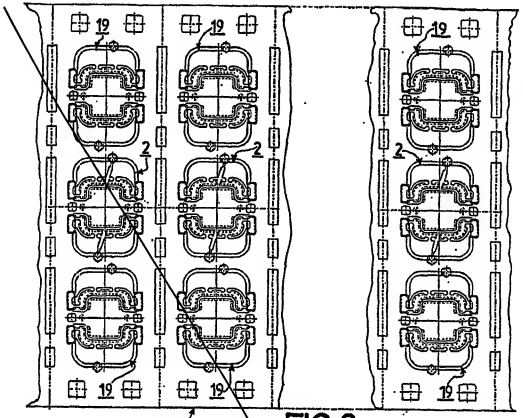


FIG.3

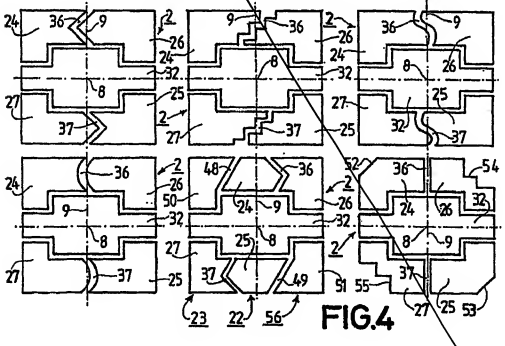


FIG.4

Figure 5

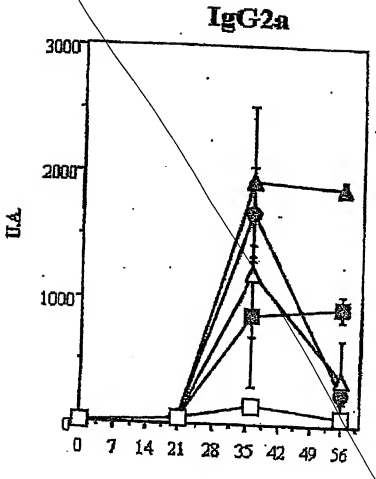
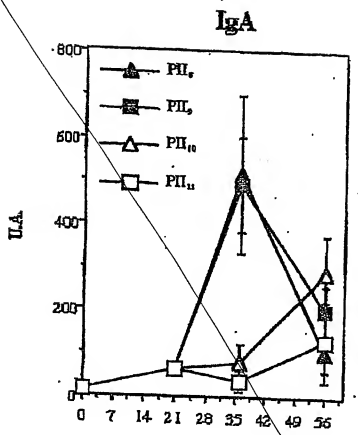


Figure 6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200
0
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PII9
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PII11
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7
14
21
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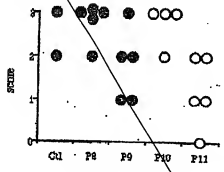
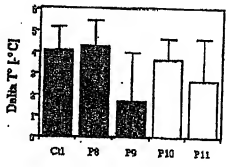
35
42
49
56

Figure 7

Challenge J36

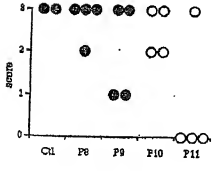


clinical score

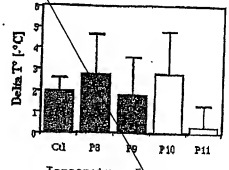


Temperature Ear

Challenge J56



clinical score



Temperature Ear

EPITOPE COMPOSITION FOR SUBLINGUAL, BUCCAL OR ENTERIC ADMINISTRATION PREPARED BY HYDROLYSIS OF ANTIGENIC STRUCTURES WITH CHYMOTRYPSIN

[0001] The invention relates to a module with a chip with chip connection contacts, this module having a mid-point and being envisaged for use in a data carrier designed for contactless communication, this data carrier containing the module with the chip with chip connection contacts and additionally at least one further electrical component—connected in an electrically conductive manner with the chip—with component connection contacts, wherein the electrically conductive connection between the chip and the at least one further component can be realized in accordance with two opposed polarities.

[0002] The invention furthermore relates to a data carrier that is designed for contactless communication and which contains a module with a chip with chip connection contacts and additionally at least one further electrical component—connected in an electrically conductive manner with the chip—with component connection contacts.

[0003] The invention furthermore relates to a lead frame configuration which is intended for the production of a module as described above in the first paragraph, and which has a mid-point.

[0004] A module in accordance with the design described above in the first paragraph and a data carrier in accordance with the design described above in the second paragraph and a lead frame configuration in accordance with the design described above in the third are known from the patent document WO 02/095673 A1. In the case of the known solutions, the design is such that the module has a chip with just two chip connection contacts and that the module has just two module connecting plates, wherein each module connecting plate is designed to be electrically conductive and is connected in an electrically conductive manner to a chip connection contact and is envisaged for the electrically conductive connection with a component connection contact of a single further component.

[0005] The known designs thus have an important restriction, namely because these designs are suitable only for the module and the chip contained in this module to work together with a single further component with two component connection contacts, namely with a transfer coil with two coil connection contacts. In the case of the known designs, the two module connecting plates can be brought into contact connection in a non-interchangeable manner only with these two component connection contacts, wherein it is irrelevant with which polarity the further component, i.e. the transmission coil, is connected with the module connecting plates and consequently with the chip connection contacts. The electrically conductive connection between the chip and the further component can thus advantageously be realized in accordance with two opposed polarities, which represents a considerable advantage in the production of a data carrier, since both in the case of module connecting plates located in their starting position as well as in the case of module connecting plates located in a position that is rotated by 180° relative to the starting position, each module can be connected with the single further electrical component.

[0006] It is an object of the invention to eliminate the restriction mentioned above and to realize an improved module and an improved data carrier and an improved lead frame configuration.

[0007] To achieve the object described above, in the case of a module according to the invention, features in accordance with the invention are provided, so that a module according to the invention can be characterized in the manner as stated below, namely:

[0008] A module with a chip with chip connection contacts, this module having a mid-point and being envisaged for use in a data carrier designed for contactless communication, this data carrier containing the module with the chip with chip connection contacts and additionally at least one further electrical component—connected in an electrically conductive manner with the chip—with component connection contacts, wherein the electrically conductive connection between the chip and the at least one further component can be realized in accordance with two opposed polarities, and wherein the module has a chip with at least two pairs of chip connection contacts, and wherein the module has at least two pairs of module connecting plates, wherein the two module connecting plates of each pair are provided for the electrically conductive connection with the component connection contacts of one each of at least two further components, and wherein each module connecting plate has a plate surface with a particular shape and is designed to be electrically conductive and is connected in an electrically conductive manner to a chip connection contact, and wherein the shapes of the plate surfaces of the two module connecting plates of each pair are identical, and wherein the shapes of the plate surfaces of the module connecting plates of different pairs are different, and wherein in a starting position of the module connecting plates, the shapes of the plate surfaces of the module connecting plates result in a particular plate pattern and differ such that when all the module connecting plates are jointly rotated, starting from the starting position, around an axis that runs perpendicular in relation to the plate surfaces and passes through the mid-point, the same plate pattern always results after joint rotation around 180° in each case.

[0009] To achieve the object described above, in the case of a data carrier according to the invention, features in accordance with the invention are provided, so that a data carrier according to the invention can be characterized in the manner described below, namely:

[0010] A data carrier that is designed for contactless communication and contains a module with a chip with chip connection contacts and additionally at least one further electrical component—connected to the chip in an electrically conductive manner—with component connection contacts, and wherein the module is designed in accordance with the invention and wherein the module connecting plates of each pair of module connecting plates is connected to the component connection contacts of, in each case, one of at least two further components.

[0011] To achieve the object described above, in the case of a lead frame configuration according to the invention, features in accordance with the invention are provided, so that a lead frame configuration according to the invention can be characterized in the manner described below, namely:

[0012] A lead frame configuration which is provided for the production of a module according to the invention and

which has a mid-point, wherein the lead frame configuration has at least two pairs of module connecting plates, wherein the two module connecting plates of each pair are intended for the electrically conductive connection with the component connection contacts of in each case one of at least two further components, and wherein each module connecting plate has a plate surface with a particular shape and is designed to be electrically conductive and is connected in an electrically conductive manner to a chip connection contact, and wherein the shapes of the plate surfaces of the two module connecting plates of each pair are identical, and wherein the shapes of the plate surfaces of the module connecting plates of different pairs are different, and wherein in a starting position of the module connecting plates, the shapes of the plate surfaces of the module connecting plates yield a particular plate pattern and differ such that, starting from the starting position, when all the module connecting plates are jointly turned around an axis that runs perpendicular in relation to the plate surfaces and passes through the mid-point, the same plate pattern always results after joint turning around 180° in each case.

[0013] Through the provision of the features in accordance with the invention, in a structurally simple manner and with only very little additional expenditure it is achieved that a module according to the invention is suitable not only for working together with a single further component of a data carrier, but also that a module according to the invention is suitable for working together with at least two further components of a data carrier. The following can be provided as further components: a transmission coil, a display device, for example an LED, a safety switch that can be operated manually, a temperature measuring device, a moisture measuring device, a power supply device with solar cells, and various others. By providing the measures according to the invention, in the connection mentioned above, the advantage is achieved that despite the use of several further components, the electrically conductive connection between the chip and the several further components can be realized in an advantageous manner in the case of each of these components, in accordance with two opposed polarities. Furthermore, in an advantageous manner it is achieved that the module connecting plates can be easily and safely distinguished from one another, since the shapes of the plate surfaces of the module connecting plates of different pair are different. Through this different design of the module connecting plates of different pairs of module connecting places, it is achieved that despite the use of several further components, the possibility of producing a wrong contact connection between the module connecting plates and the component connection contacts is excluded, namely because the several module connecting plates yield a particular plate pattern only in their starting position and in the position opposite the starting position, rotated around 180° in relation to the starting position, and therefore with the aid of—for example—optical means, but also with the aid of mechanical means or by means that work in other ways, it is easily possible to detect the particular plate patterns and to permit and effect a connection of the several module connecting plates to the component connection contacts only when the several module connecting plates are located in their starting position or in the position opposite the starting position rotated around 180° relative to it, and consequently yield the desired particular plate pattern. It is thus always ensured that despite the use of several further components, each component is connected via its component connection contacts with the correct module connecting plates, and consequently with the correct chip connection contacts.

[0014] It may be mentioned that from the patent document U.S. Pat. No. 5,005,282, we know of a module which however is intended for use in a data carrier which is intended and designed exclusively for contact-based communication. Here, the known module has a total of eight module connecting plates, which however are not designed for electrically conductive connection with additional further components, since in the case of the known module this is not necessary and consequently not useful either. The eight module connecting plates have, in part, different plate surfaces which in a starting position likewise yield a particular plate pattern, but the shapes of the plate surfaces differ such that when all the module connecting plates are jointly rotated, starting from the starting position, around an axis that runs perpendicular in relation to the plate surfaces and passes through the mid-point, the same plate pattern results only after joint rotation around 360° in each case, and not after joint rotation around just 180° in each case, so that the production advantages that are made possible by the 180° repetition of the plate pattern cannot be attained in the case of the known solution. In constructional respects, the solution known from the patent document U.S. Pat. No. 5,005,282 is thus clearly different from the solutions according to the invention, and does not offer the advantages of the solutions according to the invention.

[0015] In the case of the solutions according to the invention, the module connecting plates can for example extend away from the mid-point in four directions that run perpendicular to one another. In the case of the solutions according to the invention, it has however been shown to be very advantageous if in addition the features as claimed in claim 2 or claim 9 are provided. In terms of constructional design, such a design comes very close to the previous and known designs which are suitable only for connecting a single further component to a module, so that assembly devices that already exist and have been used to date can also be used for assembling modules according to the invention in a data carrier. Furthermore, such a design is advantageous in respect of a particularly high level of security against wrong connection of module connecting plates and component connection contacts. Such a design is moreover very simple.

[0016] In the case of the solutions according to the invention, which are described above, the shapes of the plate surfaces of two module connecting plates lying next to each other can differ from one another as a consequence of the courses of the circumferences of these two module connecting plates. It has however been shown to be very advantageous if the shapes of the plate surfaces of two module connecting plates lying next to one another are different as a consequence of the characteristics of the separation zone separating these two module connecting plates. This has the advantage that in their circumferential area, the plate surfaces do not need to have any special courses and features, and consequently can have the same courses apart from the separation zone, as is known from existing module connecting plates.

[0017] In the case of the solutions according to the invention, the shape of the separation zone can be used as the characteristic of the separation zone. For example, the

separation zone can be designed to be arc-shaped or saw-tooth-shaped or wave-shaped. It has however proved to be very advantageous if in the case of the solutions according to the invention, as a characteristic of the separation zone its course is utilized, wherein it is particularly advantageous if a separation zone lying between two module connecting plates that lie next to one another runs obliquely to the main direction. This is advantageous in respect of a very simple constructional design and in respect of simple and economical producibility of the separation zone.

[0018] It has been shown to be particularly advantageous here if the separation zone runs in a straight line. This is advantageous because through this, it is made possible for the separation zone to be produced with the aid of different methods and in a simple manner.

[0019] In the case of the solutions according to the invention, for producing the module and the module connecting plates one can use a synthetic, for example fiber-reinforced, which is equipped with an electrically conductive layer, wherein the electrically conductive layer is utilized to form the module connecting plates. It has however been shown to be very advantageous if the module connecting plates have been produced with the aid of a conductor frame configuration. Such a design is particularly advantageous since a conductor frame configuration is practically not hygroscopic at all, and is consequently very resistant to the influences of moisture.

[0020] These and other aspects of the invention are apparent from and will be elucidated with reference to the embodiments described hereinafter.

[0021] The invention will be described further below, on the basis of seven design examples illustrated in the drawings, without the invention being restricted to these examples.

[0022] In the drawings,

[0023] **FIG. 1** shows, in a schematic manner, in a view from above, a module according to a first design example of the invention.

[0024] **FIG. 2** shows, in a schematic manner, in a view from above, a data carrier according to the invention with a module according to **FIG. 1**.

[0025] **FIG. 3** shows, in a schematic manner, in a view from above, a part of a lead frame band which contains a number of lead frame configurations, wherein both the lead frame configurations according to a first design example Of the invention as well as lead frame combinations according to the prior art are provided.

[0026] **FIG. 4** shows, in a schematic manner, in plan view, a total of six further lead frame configurations in accordance with six further design examples of the invention.

[0027] **FIG. 1** shows a module **1**. The module **1** is designed to be plate-shaped and has an overall height that is as low possible: in this case, this is around 220 μm. The overall height can lie within a range of between 190 μm and 400 μm. The module **1** comprises a conductor frame configuration **2** and a chip **3**. The chip **3** contains a circuit, not shown, with the aid of which contactless communication can be carried out with a communication station that is suitable for this. The chip **3** has chip connection contacts **4**, **5** and **6**, **7**. We shall go into further detail about the purpose of the connection contacts **4** to **7** below.

[0028] The module **1** and the lead frame configuration **2** have a mid-point **8** and a main axis **9** that passes through the mid-point **8**, and a secondary axis **10** that likewise passes through the mid-point **8**.

[0029] The module **1** is intended for use in a data carrier **11** that is designed for contactless communication. The data carrier **11** is shown in **FIG. 2**. The data carrier **11** contains, as an electrical component, the module **1** with the chip **3** which has the chip connection contacts **4**, **5**, **6** and **7**. Furthermore, the data carrier **111** contains two further electrical components, of which the first further component is formed by a transmission coil **12** for contactless communication, and the second further component is formed by a safety switch **13** for blocking or releasing the functionality of the chip **3** and consequently of the data carrier **11**. The first further component, i.e. the transmission coil **12**, has two component connection contacts, namely two coil connection contacts **14** and **15**. The second further component, i.e. the safety switch **13**, likewise has two component connection contacts, namely two switch connection contacts **16** and **17**. The coil connection contacts **14** and **15** and the switch connection contacts **16** and **17** are connected to the chip connection contacts **4** and **5** or **6** and **7** in an electrically conductive manner; this will be dealt with in greater detail below. In the case of the data carrier **11**, due to the electrical characteristics of the transmission coil **12** and of the safety switch **13**, the situation is such that the electrically conductive connection between the chip **3** or the chip connection contacts **4**, **5** and **6**,**7** and the further components, i.e. the transmission coil **12** and the safety switch **13**, can be realized in accordance with two opposed polarities. In the case of the solution illustrated in **FIG. 2**, the first coil connection contact **14** is connected in an electrically conductive manner to the first chip connection contact **4**, and the second coil connection contact **15** to the second chip connection contact **5**, and the first switch connection contact **16** to the third chip connection contact **6**, and the second switch connection contact **17** to the fourth chip connection contact **7**. It could however also be the case that the module **1** and consequently the chip **3** is installed in the data carrier **11** in a position rotated around 180°, wherein the second chip connection contact **5** is then connected to the first coil connection contact **14**, and the first chip connection contact **4** to the second coil connection contact **15**, and the fourth chip connection contact **7** to the first switch connection contact **16**, and the third chip connection contact **6** to the second switch connection contact **17**. In the case of this solution too, perfect functioning of the data carriers **11** is ensured.

[0030] As has already been mentioned above, the lead frame configuration **2** forms an important constituent component of the module **1**. A large number of such lead frame configurations **2** is contained in a conductor frame tape **18**, which is shown in part in **FIG. 3**. The lead frame tape **18** contains the lead frame configurations **2**, wherein the number of lead frame configurations **2** depends on the length of the lead frame tape **18**. In addition to the lead frame configurations **2** which are of a design in accordance with the invention, also provided in the case of the lead frame tape **18** are further lead frames **19** of a design which conforms to the known prior art.

[0031] As has also been mentioned above, the chip **3** has four chip connection contacts **4**, **5**, **6** and **7** altogether. These four chip connection contacts **4**, **5**, **6** and **7** form two pairs **20** and **21** of chip connection contacts here, wherein the first pair **20** comprises the first chip connection contact **4** and the second chip connection contact **5**, and wherein the second pair **21** comprises the third chip connection contact **6** and the fourth chip connection contact **7**.

[0032] In the case of the module **1** and in the case of the lead plate configuration **2**, the design is such that the module **1** and the lead frame configuration **2** has two pairs **22** and **23** of module connecting plates **24**, **25** and **26**, **27**. Here, the first module connecting plate **24** and the second module connecting plate **25** form the first pair **22** of module connecting plates. The third module connecting plate **26** and the fourth module connecting plate **27** form the second pair **23** of module connecting plates. The module connecting plates **24** and **25** or **26** and **27** of each pair **22** or **23** are provided for the electrically conductive connection with the component connection contacts **14** and **15** or **16** and **17** of, in each case, one further component, namely the transmission coil **12** or the safety switch **13**. The module connecting plates **24**, **25**, **26** and **27** have thus been produced with the aid of the lead frame configuration **2**. This means that the module connecting plates **24**, **25**, **26** and **27** are designed to be electrically conductive. The module connecting plates **24**, **25**, **26** and **27** are connected in an electrically conductive manner to the chip connection contacts **4**, **5**, **6** and **7**, and in fact such that the first module connecting plate **24** is connected in an electrically conductive manner via a first bond wire **28** with the first chip connection contact **4**, and the second module connecting plate **25** via a second bond wire **29** with the second chip connection contact **5**, and the third module connecting plate **26** via a third bond wire **30** with the third chip connection contact **6**, and the fourth module connecting plate **27** via a fourth bond wire **31** with the fourth chip connection contact **7**.

[0033] In addition to the four module connecting plates **24**, **25**, **26** and **27**, the module **1** and the lead frame configuration **2** have a carrier plate **32** lying between the four module connecting plates, with the chip **3** being fastened to this carrier plate **32** with the aid of an adhesive bond, not shown. For mechanically holding together the module connecting plates **24**, **25**, **26** and **27** and the carrier plate **32**, and for mechanically protecting the chip **3** as well as the chip connection contacts **4**, **5**, **6** and **7** and the bond wires **28**, **29**, **30** and **31**, a mainly plastic, plate-shaped protective covering **33** is provided, as has long been known for familiar modules.

[0034] In the case of the module **1** and the lead frame configuration **2**, each module connecting plate **24**, **25**, **26** and **27** has a plate surface with a particular shape. Here, the shapes of the plate surfaces of the two module connecting plates **24**, **25** or **26** and **27** of each pair **22** or **23** are identical, and the shapes of the plate surfaces of the module connecting plates **24**, **26** or **25**, **27** of different pairs **22** and **23** are different. In a starting position of the module connecting plates **24**, **25**, **26** and **27**, the shapes of the plate surfaces of the four module connecting plates **24**, **25**, **26** and **27** yield a particular plate pattern, as can be seen from **FIG. 1**, but also from **FIGS. 2 and 3**. In the **FIGS. 1, 2 and 3**, the module connecting plates **24**, **25**, **26** and **27** are shown in the aforementioned starting position. The shapes of the plate surfaces of the four module connecting plates **24**, **25**, **26** and **27** vary here such that, starting from the starting position shown in the **FIGS. 1, 2 and 3**, when all the module connecting plates **24**, **25**, **26** and **27** are jointly rotated around an axis that runs perpendicular in relation to the plate surfaces and passes through the mid-point **8**, the same plate pattern always results after common rotation around 180° in each case.

[0035] Of each pair **22** or **23** of module connecting plates **24**, **25** and **26**, **27**, one module connecting plate **24** or **26** points in a first direction, indicated by the arrow **34**, that runs parallel to the main axis **9** and points away from the mid-point **8**, and the other module connecting plate **25** or **27** points in a second direction, indicated by the arrow **35**, that runs parallel to the main axis **9** and opposite to the first direction **34** and points away from the mid-point **8**. Here, the module connecting plates **24** and **26** that point in the first direction **34** lie next to one another and are separated from one another by a separation zone **36**. Furthermore, the module connecting plates **25** and **27** that point in the second direction **35** lie next to one another and are separated from one another by a separation zone **37**. Advantageously, the shapes of the plate surfaces of two module connecting plates **24**, **26** or **25**, **27** lying next to one another are different. In the present case, the different shapes of the plate surfaces of two module connecting plates **24**, **26** or **25**, **27** lying next to one another are achieved as a consequence of the characteristics of the separation zone **36** or **37** that separates these two module connecting plates **24**, **26** or **25**, **27**. In the present case, the characteristic of each separation zone **36** or **37** that is decisive for the different shapes of the plate surfaces is formed by the course of the respective separation zone **36** or **37**. As is apparent from FIGS. **1** to **3**, the two separation zones **36** and **37** run between the module connecting plates **24**, **26** and **25**, **27** that lie next to one another run obliquely to the main direction **9**, and consequently also obliquely to the secondary direction **10**. The two separation zones **36** and **37** run in a straight line here.

[0036] It should also be mentioned that provided in the module connecting plates **24**, **25**, **26** and **27** are slits **38**, **39**, **40**, **41**, **42**, **43**, **44** and **45**; the purpose of these will not be dealt with any further here, since this of no consequence in this connection. It should further be mentioned that provided between the carrier plate **32** on the one hand and the module connecting plates **24** and **26** that lie next to one another on the other hand, there is an essentially U-shaped first separation slit **46**, into which first separation slits **46** the separation zone **36** opens. It is further mentioned that provided between the carrier plate **32** on the one hand and the module connecting plates **25** and **27** lying next to one another on the other hand there is an essentially U-shaped second separation slit **47**, into which second separation slit **47** the separation zone **37** opens.

[0037] In the case of the module **1** according to **FIG. 1**, in an advantageous and simple manner it is achieved that with the chip **3** of the module **1**, two further components, namely the transmission coil **12** and the safety switch **13**, can be connected, wherein this connection is possible in two positions of the module **1** that are rotated around 180° to one another, which is advantageous in respect of production of the data carrier **11** being as simple as possible, since the module **1** can be introduced into the data carrier **11** and connected to the data carrier **11** in two different positions. Due to the design of the module connecting plates **24**, **25**, **26**

and 27 differing in pairs in respect of the shape of the plate surfaces, the module connecting plates **24**, **25**, **26** and **27** and the plate patterns formed by the module connecting plates **24**, **25**, **26** and **27** can always be perfectly recognized and detected if necessary, so that it is always ensured with certainty that the correct further components are brought together in an electrically conductive connection with the correct module connecting plates **24**, **25**, **26** and **27** intended for this. This is important particularly in the case of automated production of data carriers, since in the case of such automated production, it is possible or it is the practice for modules **1** to be brought together with the data carrier blanks of data carriers in an automated manner, wherein however the undesirable situation can occur that modules **1** are brought together with data carrier blanks in a position that is rotated around the main axis **3** by 180° relative to the starting position shown in **FIG. 1**, or in a position that is rotated around the secondary axis **10** by 180° relative to the starting position shown in **FIG. 1**, which in the event of actual installation of a module **1** that had been brought together with a data carrier blank in such a rotated position would result in a non-functional data carrier, which however is avoided with certainty on account of the design of module **1** in accordance with the invention, with its module connecting plates that differ in pairs.

[0038] **FIG. 4** shows, in a schematic manner, further design variants of lead frame configuration **2** according to the invention.

[0039] In the case of the lead frame configuration **2** shown in the left-hand upper illustration according to **FIG. 4**, the separation zones **36** and **37** are designed to be wedge-shaped.

[0040] In the case of the lead frame configuration **2** shown in the middle upper illustration according to **FIG. 4**, the separation zones **36** and **37** are designed in a step-wise manner.

[0041] In the case of the lead frame configuration **2** shown in the right-hand upper illustration, the two separation zones **36** and **37** are designed to be S-shaped. These separation zones **36** and **37** can however also be designed to be wave-shaped, i.e. in a multiple S-shape.

[0042] In the case of the lead frame configuration **2** shown in the left-hand lower illustration according to **FIG. 4**, the separation zones **36** and **37** are designed in an arc shape.

[0043] In the case of the lead flame configuration **2** shown in the middle lower illustration, in addition to the two separation zones **36** and **37** that are designed in a wedge shape, two further separation zones **48** and **49**, running obliquely and in a straight line, are provided, so that in the case of this lead frame configuration **2**, six module connecting plates **24**, **25**, **26**, **27**, **50** and **51** are provided, wherein the fifth module connecting plate **50** and the sixth module connecting plate **51** form a third pair **56** of module connecting plates. This means that in the case of a module that is realized with the aid of this lead frame configuration **2**, a total of three further components can be connected in an electrically conductive manner with this module or with the chip of this module.

[0044] In the case of the lead frame configurations **2** described above, the course of the envisaged separation zones is selected as a characteristic for the shapes of the plate surfaces of the module connecting plates that differ in pairs. Instead of the course of the separation zones, one can however also apply the course of the circumferential limitation of the module connecting plates lying next to one another as the characteristic for the different shapes of the plate surfaces. Such a lead frame configuration **2** is shown in the right-hand lower illustration according to **FIG. 4**. In the case of this lead frame configuration **2**, the two module connecting plates **24** and **25** of the first pair **22** each have a bevel **52** or **53** in the course of their circumference. The two module connecting plates **26** and **27** of the second pair **23** have a course **54** and **55** of a step-wise design in their circumferential limitation.

[0045] It should be mentioned that the designs described above, and also other designs of modules and lead frame configurations according to the invention, are also suitable for those data carriers that are suitable not only for contactless communication but also additionally for contact-based communication and accordingly are equipped with communication contacts, for example with communication contacts in accordance with the international standard ISO 7816-2.

[0046] It should furthermore be mentioned that in the case of a data carrier according to the invention, as a further component one can also use a so-called electrical quadripole, this quadripole having four connections which, with the aid of two pairs of module connecting plates, are connected to chip connection contacts of a chip of this module that are provided for this purpose.

[0047] It should furthermore be mentioned that a data carrier according to the invention can be designed in the form of a card. Such a data carrier according to the invention can however also be a constituent part of a product, and can be accommodated or installed in the product. Such a product can for example be a device from the field of entertainment electronics or a communication device such as a mobile telephone. A product of this type can however also be formed by a passport, wherein a module according to the invention is embedded in a paper page of the passport.

[0048] It should furthermore be mentioned that in the case of the module **1** or data carrier **11** according to the invention, as described above, a chip **3** is provided in semiconductor technology. A chip of this type can however also be produced on a polymer base.

[0049] It should furthermore be mentioned that in the case of the design examples described above, each module contains only one chip. This does not necessarily need to be the case, since such a module can also contain two, three or even more chips.

1. A module (**1**) with a chip (**3**) with chip connection contacts (**4**, **5**, **6**, **7**), said module (**1**) having a mid-point (**8**), and said module (**1**) being envisaged for use in a data carrier (**11**) designed for contactless communication, that data carrier (**11**) containing the module (**1**) with the chip (**3**) with chip connection contacts (**4**, **5**, **6**, **7**) and additionally at least one further electrical component (**12**, **13**)—connected in an electrically conductive manner with the chip (**3**)—with component connection contacts (**14**, **15**, **16**, **17**), wherein the electrically conductive connection between the chip (**3**) and the at least one further component (**12**, **13**) can be realized in accordance with two opposed polarities, and wherein the module (**1**) has a chip (**3**) with at least two pairs (**20**, **21**) of

chip connection contacts (4, 5, 6, 7), and wherein the module (1) has at least two pairs (22, 23; 22, 23, 56) of module connecting plates (24, 25, 26, 27; 24, 25, 26, 27, 50, 51), wherein the two module connecting plates (24, 25, 26, 27; 24, 25, 26, 27, 50, 51) of each pair (22, 23; 22, 23, 56) are provided for the electrically conductive connection with the component connection contacts (4, 5, 6, 7) of in each case one of at least two further components (12, 13), and wherein each module connecting plate (24, 25, 26, 27; 24, 25, 26, 27, 50, 51) has a plate surface with a particular shape and is designed to be electrically conductive and is connected in an electrically conductive manner with a chip connection contact (4, 5, 6, 7), and wherein the shapes of the plate surfaces of the two module connecting plates (24, 25, 26, 27; 24, 25, 26, 27, 50, 51) of each pair (22, 23; 22, 23, 56) are identical, and wherein the shapes of the plate surfaces of the module connecting plates (24, 25, 26, 27; 24, 25, 26, 27, 50, 51) of different pairs (22, 23; 22, 23, 56) are different, and wherein in a starting position of the module connecting plates, the shapes of the plate surfaces of the module connecting plates (24, 25, 26, 27; 24, 25, 26, 27, 50, 51) result in a particular plate pattern and differ such that when, starting from the starting position, all the module connecting plates (24, 25, 26, 27; 24, 25, 26, 27, 50, 51) are jointly rotated around an axis that runs perpendicular in relation to the plate surfaces and that passes through the mid-point (8), the same plate pattern always results after joint rotation around 180° in each case.

2. A module (1) as claimed in claim 1, wherein the module (1) has a main axis

running through the mid-point (8), and wherein of each pair (22, 23; 22, 23, 56) of module connecting plates, one module connecting plate (24, 26; 24, 26, 50) points in a first direction (34) that runs parallel to the main axis (9) and points away from the mid-point (8), and the other module connecting plate (25, 27; 25, 27, 51) points in a second direction (35) that runs parallel to the main axis (9) and runs opposite to the first direction (34) and points away from the mid-point (8), and wherein the module connecting plates (24, 26; 50, 24, 26) that point in the first direction (34) lie next to one another and are separated from one another by a separation zone (36; 48, 36) in each case, and wherein the module connecting plates (25, 27; 25, 27, 51) that point in the second direction (35) lie next to one another and are separated from one another by a separation zone (37; 49, 37) in each case, and wherein the shapes of the plate surfaces of two module connecting plates (24, 26, 27, 25; 50, 24, 26, 27, 25, 51) lying next to one another are different.

3. A module (1) as claimed in claim 2, wherein the shapes of the plate surfaces of two module connecting plates (24, 26, 27, 25; 50, 24, 26, 27, 25, 51) lying next to one another are different as a consequence of the characteristics of the separation zone (36, 37; 48, 36, 37, 49) that separates these two module connecting plates.

4. A module (1) as claimed in claim 3, wherein at least one separation zone (36, 37; 48, 49) lying between two module connecting plates (24, 26, 27, 25; 50, 26, 25, 51) that lie next to one another runs obliquely to the main direction.

5. A module (1) as claimed in claim 4, wherein the separation zone (36, 37; 48, 49) runs in a straight line.

6. A module (1) as claimed in claim 1, wherein the module connecting plates (24, 25, 26, 27; 24, 25, 26, 27, 50, 51) have been produced with the aid of a conductor frame configuration (2).

7. A data carrier (11) that is designed for contactless communication and contains a module (1) with a chip (3) with chip connection contacts (4, 5, 6, 7) and additionally at least one further electrical component (12, 13)—connected in an electrically conductive manner with the chip (3)—with component connection contacts (14, 15, 16, 17), and wherein the module (1) is designed as claimed in any one of the claims 1 to 7, and wherein the module connecting plates (24, 25, 26, 27; 24, 25, 26, 27, 50, 51) of each pair (22, 23; 22, 23, 56) of module connecting plates is connected with the component connection contacts (14, 15, 16, 17) of in each case one of at least two further components (12, 13).

8. A lead frame configuration (2) which is provided for the production of a module (1) as claimed in any one of the claims 1 to 7 and which has a mid-point (8), wherein the lead frame configuration (2) has at least two pairs (22, 23; 22, 23, 56) of module connecting plates (24, 25, 26, 27; 24, 25, 26, 27, 50, 51), wherein the two module connecting plates (24, 25, 26, 27; 24, 25, 26, 27, 50, 51) of each pair (22, 23; 22, 23, 56) are intended for the electrically conductive connection with the component connection contacts (4, 5, 6, 7) of in each case one of at least two further components (12, 13), and wherein each module connecting plate (24, 25, 26, 27; 24, 25, 26, 27, 50, 51) has a plate surface with a particular shape and is designed to be electrically conductive and is connected in an electrically conductive manner to a chip connection contact (4, 5, 6, 7), and wherein the shapes of the plate surfaces of the two module connecting plates (24, 25, 26, 27; 24, 25, 26, 27, 50, 51) of each pair (22, 23; 22, 23, 56) are identical, and wherein the shapes of the plate surfaces of the module connecting plates (24, 25, 26, 27; 24, 25, 26, 27, 50, 51) of different pairs (22, 23; 22, 23, 56) are different, and wherein in a starting position of the module connecting plates, the shapes of the plate surfaces of the module connecting plates (24, 25, 26, 27; 24, 25, 26, 27, 50, 51) yield a particular plate pattern and differ such that, starting from the starting position, when all the module connecting plates (24, 25, 26, 27; 24, 25, 26, 27, 50, 51) are jointly turned around an axis that runs perpendicular in relation to the plate surfaces and passes through the mid-point (8), the same plate pattern always results after joint turning around 180° in each case.

9. A lead frame configuration (2) as claimed in claim 8, wherein the lead frame configuration (2) has a main axis (9) that passes through the mid-point (8), and wherein of each pair (22, 23; 22, 23, 56) of module connecting plates, one module connecting plate (24, 26; 24, 26, 50) points in a first direction (34) that runs parallel to the main axis (9) and points away from the mid-point (8), and the other module connecting plate (25, 27; 25, 27, 51) points in a second direction (35) that runs parallel to the main axis (9) and runs opposite to the first direction (34) and points away from the mid-point (8), and wherein the module connecting plates (24, 26; 50, 24, 26) that point in the first direction (34) lie next to one another and are separated from one another by a separation zone (36; 48, 36) in each case, and wherein the module connecting plates (25, 27; 25, 27, 51) that point in the second direction (35) lie next to one another and are each separated from one another by a separation zone (37; 49, 37) in each case, and wherein the shapes of the plate surfaces of

two module connecting plates (**24, 26, 27, 25; 50, 24, 26, 27, 25, 51**) that lie next to one another are different.

10. A lead frame configuration (**2**) as claimed in claim 9, wherein the shapes of the plate surfaces of two module connecting plates (**24, 26, 27, 25; 50, 24, 26, 27, 25, 51**) that lie next to one another are different as a consequence of the characteristics of the separation zone (**36, 37; 48, 36, 37, 49**) that separates these two module connecting plates.

11. A lead frame configuration (**2**) as claimed in claim 10, wherein at least one separation zone (**36, 37; 48, 49**) lying between two module connecting plates (**24, 26, 27, 25; 50, 26, 25, 51**) that lie next to one another runs obliquely to the main direction.

12. A conductor frame configuration (2) as claimed in claim 11, wherein the separation zone (**36, 37; 48, 49**) runs in a straight line.

* * * * *

Please replace specification and drawings with the attached specification and drawings for the above-identified application.